Assignment 4 (Theory)

Solution 1.

1. Named Entity Recognition:
   * The number of outputs will be equal to the number of words which is ‘n’
   * The probability distribution will be over the class outcomes i.e. person, organization, location or none
   * All the ‘n’ words will be fed as input with one word at each timestep. The output of that is then fed into the next step with the next word
2. Sentiment Analysis:
   * Only 1 output mentioning the number from the sentiment range
   * Probability distribution will be over the 5 output class-0,1,2,3,4
   * Each word of the sentence is fed as input the output of each is sequentially fed to next one. The final output will be the output from the final state
3. Language models:
   * Single output is required as it needs to predict only the next word in the test phase but in the training phase every word fed will have an output against the vocabulary used to train the model
   * The output is a probability distribution over the vocabulary used to predict
   * The input is a single start word or token
   * During the training phase we make the model the learn the general sentence structure and affinity of certain words coming together which makes it a many to many model architecture but during the test if the ideal is to only predict the next word then only a single output is required

Solution 2.

1(i). =

(ii).

(iii).

2. (i). +

(ii).

(iii). +

3 (i). ++

(ii).

(iii). ++

Programming Questions

Solution 1. Report/code in Assignment\_4\_1\_final.ipynb

Solution 2. Report/code in Assignment\_4\_2\_final.ipynb